

AD-A070 968

WICHITA STATE UNIV KS CENTER FOR HUMAN APPRAISAL
THE MEASUREMENTS OF JOB STRESS ON AN OPERATIONAL UNIT OF THE MI--ETC(U)
MAR 77 N C LEBLANC

F/6 5/10

AFOSR-76-2907

UNCLASSIFIED

TR-77-117

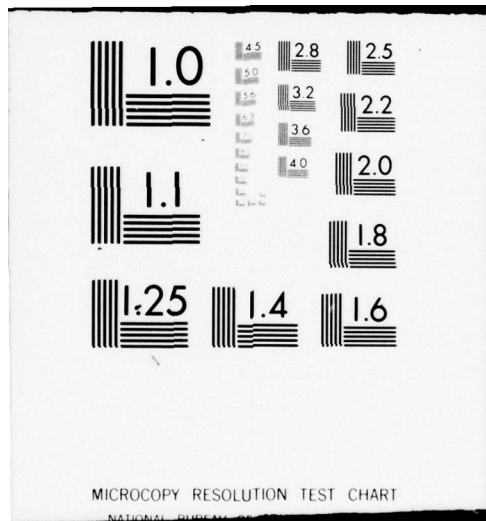
AFOSR-TR-79-0818

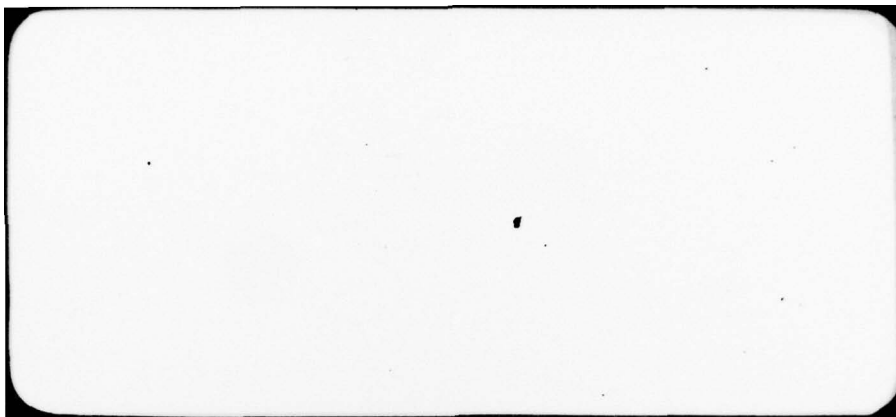
NL

1 OF 1
AD
A070 968



END
DATE
FILMED
8-79
DDC





UNCLASSIFIED

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

19 REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM													
1. REPORT NUMBER 18 AFOSR-TR-79-0818	2. GOVT ACCESSION NO.	3. RECIPIENT'S CATALOG NUMBER													
4. TITLE (and Subtitle) 6 THE MEASUREMENTS OF JOB STRESS ON AN OPERATIONAL UNIT OF THE MILITARY	5. TYPE OF REPORT & PERIOD COVERED 9 INTERIM rept.														
7. AUTHOR(s) 10 Nazaire C. LeBlanc	6. PERFORMING ORG. REPORT NUMBER 77-117														
9. PERFORMING ORGANIZATION NAME AND ADDRESS Center for Human Appraisal Wichita State University Wichita, Kansas 67208	8. CONTRACT OR GRANT NUMBER(s) 15 ✓ AFOSR-76-2907														
11. CONTROLLING OFFICE NAME AND ADDRESS Air Force Office of Scientific Research (NL) Bolling AFB DC 20332	10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS 16 61102F 2313/A3 17 A3														
14. MONITORING AGENCY NAME & ADDRESS (if different from Controlling Office) 12 62P	12. REPORT DATE 11 March 1977														
	13. NUMBER OF PAGES 59														
	15. SECURITY CLASS. (of this report) Unclassified														
16. DISTRIBUTION STATEMENT (of this Report) Approved for public release; distribution unlimited. 14 TR-77-117															
17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)															
18. SUPPLEMENTARY NOTES 408 269 <i>DM</i>															
19. KEY WORDS (Continue on reverse side if necessary and identify by block number) <table border="0"> <tr> <td>Stress</td> <td>Indirect Measurement</td> <td>Missile Crews</td> </tr> <tr> <td>Anxiety</td> <td>Threat Responses</td> <td>Security Police</td> </tr> <tr> <td>Fear</td> <td>Repression</td> <td>Fear Anxiety Profile</td> </tr> <tr> <td>Stress Ratings</td> <td>Reduced Performance</td> <td></td> </tr> </table>				Stress	Indirect Measurement	Missile Crews	Anxiety	Threat Responses	Security Police	Fear	Repression	Fear Anxiety Profile	Stress Ratings	Reduced Performance	
Stress	Indirect Measurement	Missile Crews													
Anxiety	Threat Responses	Security Police													
Fear	Repression	Fear Anxiety Profile													
Stress Ratings	Reduced Performance														
20. ABSTRACT (Continue on reverse side if necessary and identify by block number) <p>A study was performed to measure the amount of job stress that was present in various jobs in an operational unit of the U.S. Air Force. The job areas that were measured were the Personnel field (CBPO), Missile Operations, Maintenance, Security Police, and members of the Communications Squadron. It was assumed that these jobs were representative of the jobs needed to accomplish the mission of an operational unit.</p> <p>(Cont'd on reverse)</p>															

Essential to this study was an analysis of the differences in job stress perceptions by commanders and their subordinates. An understanding of this difference can go far toward alleviating stress in jobs and in increasing the performance of the individuals holding those jobs. A further analysis was made into analyzing specific areas of stress and comparing them to areas of threat measured by other testing instruments. These other instruments were covert means of measuring stress in terms of fear and anxiety.

A serious concern was expressed by the writer, as a result of this study, for the impact that job stress may have on the operational capability of U.S. Air Force units.

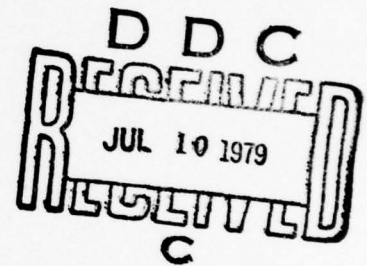
12

TECHNICAL REPORT NUMBER 117
THE MEASUREMENTS OF JOB STRESS ON AN
OPERATIONAL UNIT OF THE MILITARY

BY

NAZAIRE C. LEBLANC, M.S.

Center for Human Appraisal
Wichita State University
March, 1977



AIR FORCE OFFICE OF SCIENTIFIC RESEARCH (AFSC)

NOTICE OF TRANSMITTAL TO DDC

This technical report has been reviewed and is
approved for public release IAW AFR 190-12 (7b).
Distribution is unlimited.

A. D. BLOSE

Technical Information Officer

*This Research was conducted under the sponsorship
of Air Force Office of Scientific Research*

AFOSR-76-2907 C

Approved for public release,
distribution unlimited.

1

ABSTRACT

A study was performed to measure the amount of job stress that was present in various jobs in an operational unit of the U. S. Air Force. The job areas that were measured were the Personnel field (CBPO), Missile Operations, Maintenance, Security Police, and members of the Communications Squadron. It was assumed that these jobs were representative of the jobs needed to accomplish the mission of an operational unit.


Essential to this study was an analysis of the differences in job stress perceptions by commanders and their subordinates. An understanding of this difference can go far toward alleviating stress in jobs and in increasing the performance of the individuals holding those jobs. A further analysis was made into analyzing specific areas of stress and comparing them to areas of threat measured by other testing instruments. These other instruments were covert means of measuring stress in terms of fear and anxiety.

A serious concern was expressed by the writer, as a result of this study, for the impact that job stress may have on the operational capability of U. S. Air Force units.

TABLE OF CONTENTS

	Page
Chapter I: Introduction	
Purpose of the Study	1
Organization of Thesis	2
Definition of Stress	2
Review of the Literature	3
Chapter II: Methodology	
Subjects	13
Scope and Limitations of Research	14
Method of Data Collection	14
Statistical Tools Used	16
Hypothesis	17
Chapter III: Results	
Frequency Count and Means of Responses	18
Correlated Data	25
Factor Analysis	36
Chapter IV: Discussion	
Perceptions of Job Stress	41
Job Stress and Other Threat Responses	42
Recognition of Job Stress	43

Chapter V: Summary	
Summary	44
Conclusion	45
Recommendations	47
Bibliography	48
Appendix A	50
Appendix B	52

Accession For	
NTIS GRA&I	<input checked="checked" type="checkbox"/>
DDC TAB	<input type="checkbox"/>
Unannounced	<input type="checkbox"/>
Justification	
By _____	
Distribution/	
Availability Codes	
Dist.	Avail and/or special
	

TABLES

	Page
Table 3-1-Means of Commanders' Responses	19
Table 3-2-Means of Subordinates' Responses	20
Table 3-3-Comparison of Means	21
Table 3-4-Frequency Count of Responses-Commanders	22
Table 3-5-Frequency Count of Responses-Subordinates	23
Table 3-6-Means of Subordinates Responses by Instrument	24
Table 3-7-Correlation of Instruments with Respect to Death	25
Table 3-8-Correlation of Instruments with Respect to Assault	26
Table 3-9-Correlation of Instruments with Respect to Emotional	26
Table 3-10-Correlation of Instruments with Respect to Social Rejection	27
Table 3-11-Correlation of Instruments with Respect to Impotence	28
Table 3-12-Correlation of Instruments with Respect to Marital Rejection	29
Table 3-13-Correlation of Instruments with Respect to Parental Rejection	29
Table 3-14-Correlation of Instruments with Respect to Jail	30
Table 3-15-Correlation of Instruments with Respect to Sin	30
Table 3-16-Correlation of Instruments with Respect to Hospital	31
Table 3-17-Correlation of Instruments with Respect to Financial	32
Table 3-18-Correlation of Instruments with Respect to War	32
Table 3-19-Correlation Between JSA and Other Measures of Concern ...	33
Table 3-20-Correlation Between JSR b/ Subordinates and Other Measures of Concern	34

Table 3-21-Correlation Between JSR(C) by Commanders and Other	
Measures of Concern	35
Table 3-22-Factor I. Job Stress	36
Table 3-23-Factor II. Repression	37
Table 3-24-Factor III. Recognition of Danger	38
Table 3-25-Factor IV. Emotional Distress	39
Table 3-26-Factor V. Dread Rejection	39
Table 3-27-Factor VI. Sin	40
Table 3-28-Factor VII. Finance	40

FIGURES

	Page
Figure 1-1-Typical Group Stress and the Mediation of Their Consequences	8
Figure 1-2-Theoretical Curve of Group Performance under Stress Over Time in Case of Mastery of Stress	9
Figure 1-3-Theoretical Curve of Group Performance under Continued Stress with Ultimate Collapse	9
Figure 1-4-Theoretical Curve of Typical Group Performance under Conditions of Increasingly Intense Stress	10
Figure 1-5-Principles Underlying Item Construction for the Fear Anxiety Profile	12

CHAPTER I

INTRODUCTION

Purpose of the Study

The purpose of this study was to measure the amount of job stress that was present in various jobs in an operational unit of the U. S. Air Force. The unit chosen was the 381st Strategic Missile Wing based at McConnell AFB, Kansas. The mission of the 381st was to maintain Titan II Intercontinental Ballistic Missiles (ICBM) on alert 24 hours a day. The various job areas chosen to measure were the Personnel field (CBPO), the Missile Operations crews, the Maintenance crews, the Security Police, and members of the Communications function. It was assumed by this writer that the five job areas chosen were representative of jobs that were necessary to enable an operational unit to perform its mission.

It is believed by this writer that if the jobs that incur greater stress are identified, procedures can be implemented to reduce this stress and hopefully to result in better performance by the individuals. The main beneficiary of this improvement would be the operational unit through the better accomplishment of its mission. Another result of the identification and reduction of job stress would be the improved desirability of these jobs and the recruitment of personnel to perform them. This improvement would ultimately result in a cost savings to the Air Force and the Department of Defense.

Organization of Thesis

This thesis was organized around five chapters. The first chapter provides an introduction to the study. It states the purpose of the study, its organization, gives a definition of what stress means, and provides a review of the literature on stress. Chapter II provides the methods and procedures for the conduct of this study. It includes a description of the subjects used for the testing, the scope and limitations of the research, the method of collecting the data, the statistical tools used, and concludes with the hypotheses for this thesis. Chapter III presents the results in the form of a frequency count and means of responses, correlated data, and a factor analysis. Chapter IV discusses the results arrived at in Chapter III. Then Chapter V provides a summary of the study, conclusions, and recommendations for further research in this area. The remaining pages present the references used and an appendices showing the instruments and data developed for this thesis.

Definition of Stress

A definition of stress is given here to provide a starting point or frame of reference in which to conduct the study. The definition used by this writer comes from Dr. Hans Selye (Selye, 1974). He defined stress as the "nonspecific response of the body to any demand made upon it." To understand this definition, the meaning of nonspecific must be made clearer. It is known that each demand made upon our body incurs a specific response. When we are out in the cold, our bodies shiver to produce more heat and the blood vessels in our skin contract to decrease the heat loss from our bodies' surfaces.

On the other hand, when exposed to great heat, our bodies sweat and use evaporation to cool the surface of the skin. These are the specific responses that our bodies generate. On the other hand, these derangements of our bodies cause a demand for readjustment. This demand is nonspecific in that it requires adaptation to a problem, regardless of what that problem may be.

Dr. Hans Selye (Selye, 1974) explains that "in addition to their specific actions, all agents to which we are exposed also produce a nonspecific increase in the need to perform adaptive functions and thereby to re-establish normally. This is independent of the specific activity that caused the rise in requirements. The nonspecific demand for activity as such is the essence of stress. It is immaterial whether the agent or situation we face is pleasant or unpleasant; all that counts is the intensity of the demand for readjustment or adaptation." It is this intensity of the demand for readjustment that is measured for twelve areas of stress in this study. These same twelve areas of stress are measured by six different instruments and compared for similarities.

Review of the Literature

The remaining pages of this chapter will be a review of various studies and theories about stress. Together, they represent a small amount of the literature that address stress and its many ramifications.

Three Fundamental Stresses

In a study by Walter McQuade and Ann Aikman (McQuade, 1974), they presented a description of three fundamental stresses that have passed

down over the centuries as part of the primordial heritage. The first of the primal stresses is the threat of mortal combat. When combat threatens, the caveman reaction occurs. The heart starts beating faster; blood pressure rises; the digestive system slows down; and numerous other changes take place, all automatic and all aimed against the enemy. These changes occur not only to an infantryman in combat, but also to a child frightened by strange noises at night, to boys fighting on the playground, and to men and women involved in a game of office politics. The changes are useful to the soldier and to the boys, but they only make the frightened child more scared, and in the long run they can have a deadly effect on the hard driving ambitious person trying to outmaneuver competitors. These are physical changes designed to facilitate physical action. When we need to fight or run, they can help us. When we don't, they still happen; and if the emergency doesn't pass and the threat isn't met and solved, then these changes will persist and become chronic. Eventually they can wear out the motor of the body without doing anything beneficial.

The second primal threat to survival is the basic problem of receiving enough to eat. Unlike combat, this is a problem everyone faces in its original or primordial form. That is, we all begin life as infants needing to be fed. Fighting or running is useless here, even if an infant could fight or run. What he is up against is not an enemy to be defeated, but a source to be persuaded.

The third primal threat to survival differs from the others in that it is a problem without any solution. Whether you attack or run from an enemy, or you yell for food, you at least have hope of

results. The knowledge that you must someday die is difficult to grasp. What you do is try to make your life worth living. You may develop religious beliefs and philosophies to reassure yourself. Eventually, one knows in his soul what lies ahead of him, and goes in fear not only of death itself, but of those occasions when death confronts him. This happens when a person gets sick.

The General Adaptation Syndrome (G.A.S.)

According to Dr. Hans Selye (Selye, 1956), an organism went through three stages of stress. These three stages were called the General Adaptation Syndrome. The first stage was called the alarm reaction because it represented the "bodily expression of a generalized call to arms of the defensive forces in the organism." If this alarm reaction continued for a time, a stage of adaptation or resistance followed. In other words, no living organism could be maintained in a continuous state of alarm. Selye (1956) believed that "if the body was confronted with an agent so damaging that continuous exposure to it is incompatible with life, then death ensues during the alarm reaction within the first hours or days." If the body survived, the alarm reaction would be followed by a second stage, the stage of resistance.

The stage of resistance was quite different and sometime opposite of the alarm reaction, the blood became concentrated and there was a marked loss of body weight. While during the stage of resistance, the blood was diluted and the body weight returned toward normal.

The third stage occurred after prolonged exposure to any of the noxious agents used by Selye, until eventually the acquired adaptation

was lost. This stage was called the stage of exhaustion and represented the end of a life under stress. The characteristics were a kind of premature aging due to wear and tear.

Optimal Stress Level

There are great individual differences in the amount of stress a person needs for happiness. But those who are satisfied to live purely a passive vegetable life are quite exceptional. Even the least ambitious are rarely satisfied with a minimum living standard, providing only such essentials as food, shelter, and clothing. The great majority of people need much more than that. However, there are those who are totally committed to some ideal and are willing to sacrifice their entire lives to achieve excellence through some unique accomplishment in fields that require extraordinary mental capacities and persistence. These are probably just as uncommon as the vegetable types. Most of mankind falls between these two extremes.

Dr. Selye (1974) states that the average citizen would suffer just as much from the "boredom of purposeless subsistence as from the inevitable fatigue created by the constant compulsive pursuit of perfection." In other words, the majority equally dislike a lack of stress and an excess of it. Hence each of us must carefully analyze himself and try to find the particular stress level at which he feels most comfortable, whatever occupation he selects. Those who do not succeed in this analysis will either suffer the distress of having nothing worthwhile to do or of being constantly overtaxed by excessive activity.

Group Responses to Stress

Group adaptation can most profitably be conceived of in much the same way as individual adaptation. This conceptualization is presented in Figure 1-1 (Torrance, 1965). In the stress box are listed some of the specific conditions that produce a loss of structure and place heavy loads upon groups. In the consequences box are listed the common negative and positive outcomes. Theoretically, any of the specific stresses may lead to any of the consequences or symptoms. For example, failure to attain the group's goal may result in apathy and collapse or in hostility and defiance.

The next couple of paragraphs will examine the course of adaptation when viewed along the dimensions of duration and intensity.

The extent to which group performance has been assessed under stress along a time continuum (Torrance, LaForge, and Mason, 1956) appears to conform closely to the process for individual adaptation. When there is mastery of stress, this process may be represented by the curve shown in Figure 1-2 (Torrance, 1965). In other words, when the stress is suddenly encountered, there is an initial shock or resistance to accepting the seriousness of the situation. This lag is followed by rapid over-compensation and recovery with a leveling off of performance as control is gained.

If the stress is continued long enough regardless of the intensity of the stress and strength of the group, fatigue occurs and ultimately there will be collapses, as shown in Figure 1-3. There may be vast differences, however, in the length of time required for different groups under different intensities of stress to reach a breaking point.

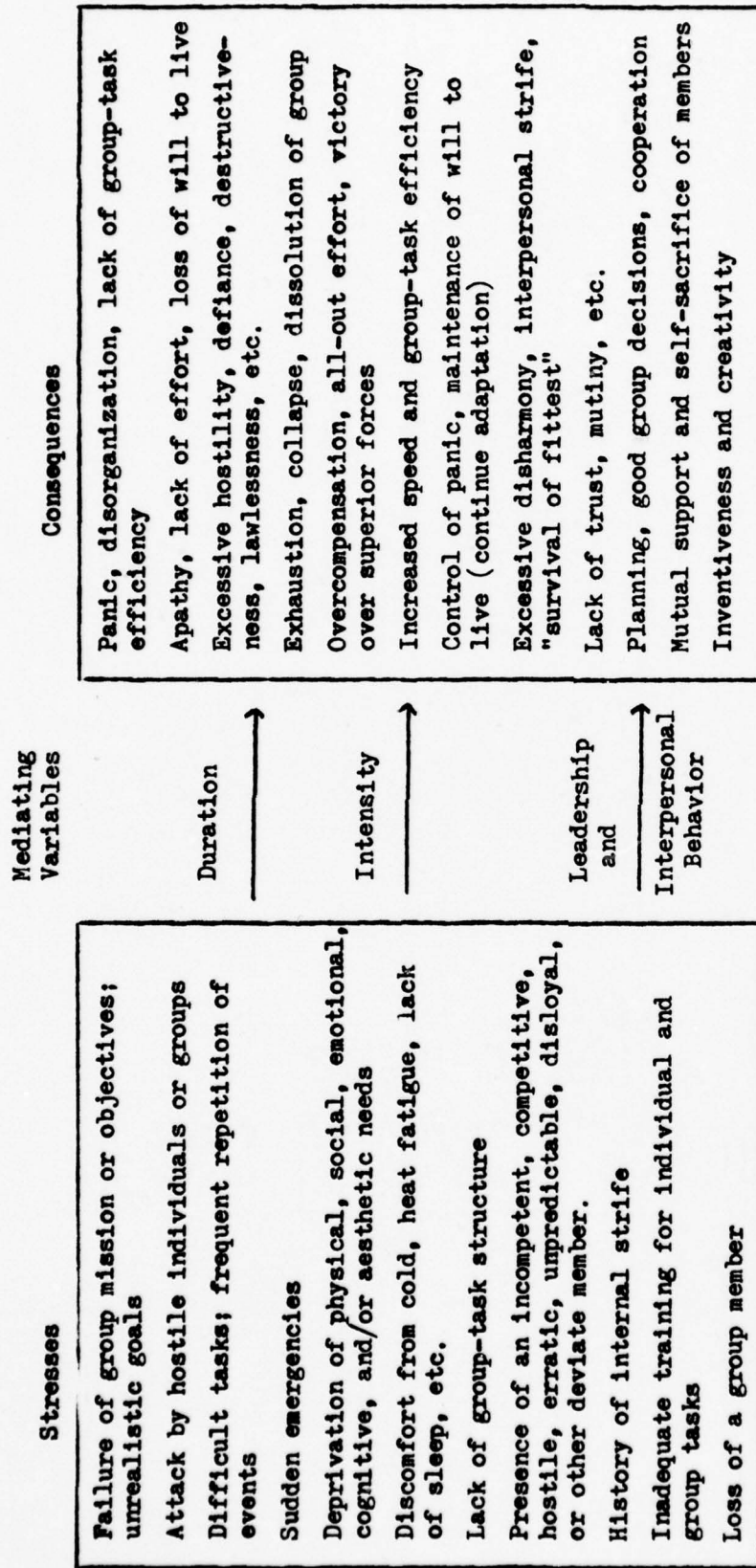


Figure 1-1. Typical Group Stresses and the Mediation of Their Consequences (Torrance, 1965)

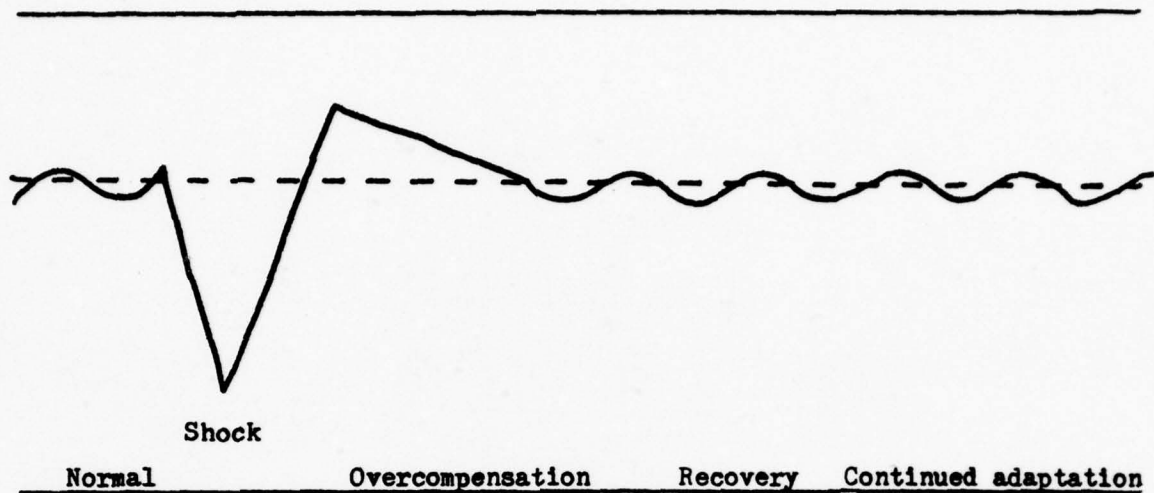


Figure 1-2. Theoretical Curve of Group Performance under Stress over Time in Case of Mastery of Stress. (Torrance, 1965)

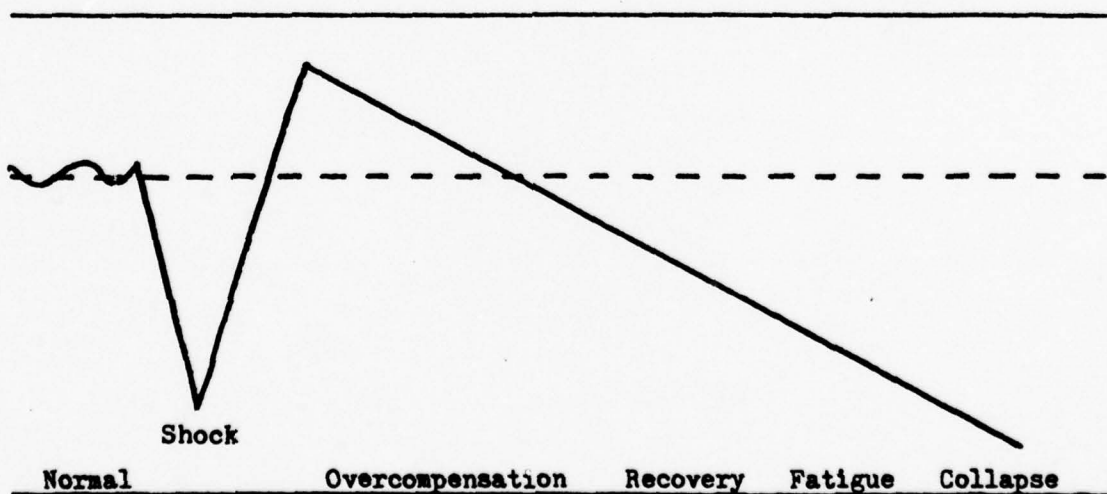


Figure 1-3. Theoretical Curve of Group Performance under Continued Stress with Ultimate Collapse (Torrance, 1965)

A number of studies of individual behavior (Harris, Mackie, and Wilson, 1956) indicate that mild stress tends to result in improved response, increased activity, and that extreme stress results in deterioration of performance. According to Torrance (1965) accounts of group survival in emergencies and extreme conditions and observations of men in survival training support a similar conclusion for groups. This relationship is shown by the curve in Figure 1-4. The performance curve rises with increasing stress up to a point and then descends.

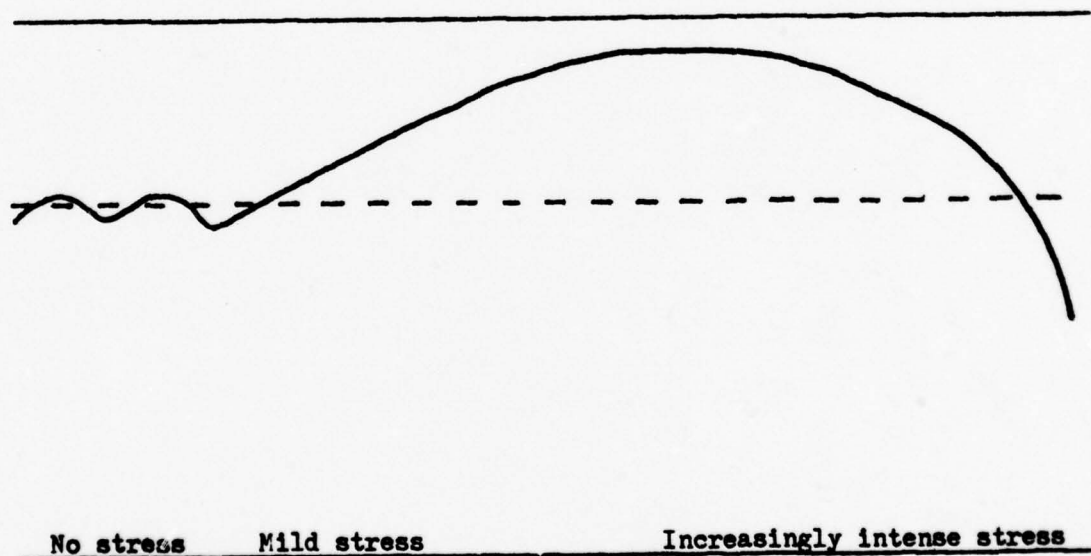


Figure 1-4. Theoretical Curve of Typical Group Performance under Conditions of Increasingly Intense Stress (Torrance, 1965)

Fear Anxiety Profile

The Fear Anxiety Profile (Sweney, 1972) utilizes four objectively scored behavior manifestations to measure twelve areas of threat: death, physical assault, emotional control, social rejection, sexual inadequacy, rejection by the opposite sex, rejection by parents, civil authority, sin, illness and injury, poverty and war. The scores for the four subtests are paired and then added to give the two types of reaction to threat, fear and anxiety.

The four behavior manifestations are the following:

Part I - Memory is scored in terms of number of words not remembered. Thus, it becomes a measure of repression and is used to form part of the anxiety score.

Part II - Paired words is a measure of preoccupation, or for low scores, a measure of conscious or unconscious censorship. This preoccupation score is part of the fear measurement.

Part III - Uncommon knowledge measures two parts: 1) perceptual distortion, and 2) information on dangers. The first part reflects the amount of unintegrated dread which he possesses and contributes to the anxiety score. The second part reflects concern or familiarity with a particular area such as danger. This familiarity with a particular is seen as an adaptive response and contributes to the fear score. In Figure 1-5 (Sweney, 1972), the principles underlying the item construction for the Fear Anxiety Profile are presented. The instrument was used in this study as a covert measure of stress and, also, to compare these measurements with other instruments that measured stress more covertly.

Figure 1-5 Principles Underlying Item Construction for the Fear Anxiety Profile

Item	Threat Area	Behavioral Principle
<p>What is the life expectancy of a middle aged man? a)60 b)65 c)70 d)75</p> <p>How many policeman out of ten are dishonest a)1 b) 3 c)5 d)7</p>	<p>Death</p> <p>Civil Authority</p>	<p>Dread: The anxious person perceives the world to be threatening, especially in those areas to which he has become particularly sensitized.</p>
<p>(Cue words to be memorized and later chosen from an assemblage of neutral words in a limited time)</p> <p>droop cross fever disliked</p>	<p>Impotence Sin Illness Social Rejection</p>	<p>Repression: The anxious subject seems to repress words in areas of specific stress while the fearful subject becomes selectively perceptive and vigilant. Because this is used as a measure of anxiety, it is scored in the repression direction.</p>
<p>What is the slang word for knife: a)shiner b)<u>shiv</u> c)rod d)bone</p> <p>The atomic bomb is made of: a)radium b)thorium c)<u>plutonium</u> d)calcium</p>	<p>Assault</p> <p>War</p>	<p>Familiarity: Information about an area of threat reflects active integrated concern. This fits operationally into the concept of <u>fear</u> as a conscious adaptation to areas of real danger.</p>
<p>lose mind money world</p> <p>peaceful love home</p> <p>mother earth</p>	<p>Emotional control Poverty War</p> <p>Jealousy Parental rejection Avoidance answer</p>	<p>Censorship: The restricted word association model has been found to be related to superego - suggesting that the response basically reflects conscious censorship. Avoidance answers give opportunity for elasticity in total censorship expressed.</p>

CHAPTER II

METHODOLOGY

Subjects

The subjects of this study were 113 officers and enlisted personnel assigned to the 381st Strategic Missile Wing at McConnell Air Force Base, Kansas. This total sample was further divided into six distinct groups for analysis. The first group represented individuals who were in a command position of significant importance. An example of this group was the Wing Commander, Vice Wing Commander, and several Squadron Commanders of the 381st Strategic Missile Wing. Others interviewed were high ranking officers of the 381st Combat Support Group. In all cases this group consisted of Colonel, Lt. Colonel, and Majors in command positions. The remaining five groups consisted of twenty individuals from each of the following job areas: 1) Consolidated Base Personnel Office (CBPO), 2) Missile Operations, 3) Missile Maintenance, 4) Security Police, and 5) Communications. Each of these last five groups was comprised of officers (O1-O3) and airmen (E2-E5) with less than six years in the Air Force. The first group of Commanders all had greater than ten years of service in the Air Force.

The distinction of separating the above subjects into six groups was that the first group was clearly in a supervisory position in which to view the remaining occupational groups. The last five groups were considered to be the subordinate or working groups that were supervised by the first group. In addition, the last five groups were representative of the five areas of work associated with an operational unit of the

U. S. Air Force. It is the assumption of this writer that the subjects used in this study are representative of the individuals that work in various job specialties throughout operational units in the U. S. Air Force.

Scope and Limitations of Research

This study was conducted on members of the Air Force that were currently engaged in various jobs related to maintaining an operational unit. It is the assumption of this writer that these jobs are representative of jobs in other operational units in the Air Force. Further, it was assumed that other branches of the military require similar jobs to be performed in order to fulfill their mission, whether it be on land or at sea.

Due to a limitation of resources and time, individuals in various job areas were chosen to take a battery of tests. It was believed that an analysis of the results from these tests would provide valuable insight into the stresses encountered in various jobs.

Method of Data Collection

The instruments used to collect data for this research were the Job Stress Rating (JSR), the Job Stress Analysis (JSA), and the Fear Anxiety Profile (FAP).

The JSR was developed for this study by LeBlanc and Sweney (1972) (See Appendix A) to rate a specific job as to the kinds and amount of stress associated with it. The kinds or areas of stress that were measured were death, assault, emotional, social rejection, parental rejection,

sexual inadequacy, affectional restriction, law and order, illness and injury, financial, war, and moral conflicts. The amount of stress in each area was measured by the rating given to it by the individual tested. He could rate the job from one (little) to five (much) indicating his estimate of the amount of stress associated with the job. It was believed that an individual's response to these stress areas would provide insight into the amount of stress associated with that job.

The JSA was developed by Cook, Hughes, LeBlanc, Libsack, and Wagner (1972) (See Appendix B) to measure a person's attitude toward various kinds of stress confronting his job. The instrument was comprised of 48 statements designed to measure twelve areas of stress (four statements per area) relating to the job. These twelve areas of stress were similar to those used in the JSR. After reading each statement the individual was requested to strongly disagree, moderately disagree, moderately agree, or strongly agree. These responses were believed to provide an additional dimension toward the analysis of job stress encountered by the test subjects.

The Fear Anxiety Profile (FAF) was developed by Dr. Arthur B. Sweney (1972) and used in this study to provide additional information about the subjects tested for this study. The FAF utilized "four objectively scored behavior manifestations to measure twelve areas of threat: death, physical assault, emotional control, social rejection, sexual inadequacy, rejection by the opposite sex, rejection by parents, civil authority, sin, illness and injury, poverty, and war. The scores for the four subtests were paired and then added to give the two types of reaction to threat, fear and anxiety," according to the FAF Manual (Sweney, 1972). For this thesis, the four subtests were compared with the JSR and the JSA in order to compare the

measurements of twelve similar areas of threat recorded by each instrument or subject.

The instruments used in this thesis were given to each of the six groups described in an earlier section. Only the JSR was given to the commanders, who were asked to rate the jobs of each of the other five groups: CBPO, Missile Operations, Missile Maintenance, Security Police, and Communications. In addition, the commanders were told that their perceptions of the job stress involved were the desired response. The other five groups were measured separately in their respective groups. Each group took the complete set of instruments and was monitored by a test monitor familiar with the appropriate procedures. Thus, each group received the same instructions throughout the tests. Finally, it was the test monitor who insured that each individual completed the three instruments and that these instruments were identified to that person.

Statistical Tools Used

The data resulting from the measurements given to the officers and airmen of McConnell AFB was analyzed by three different methods. They were a frequency count and means of responses analysis, a correlation matrix, and a factor analysis. A further description of each method will now be given.

The JSR, only, was analyzed by means of a frequency count and means of analysis. This was applied to the commanders group to give visibility to their responses as they perceived the job stress of each of the other groups. Also, the means and frequency counts of the other five groups were determined for similar visibility. Then the means were contrasted

for significant differences. The frequency counts provided greater insight into where these differences were generating from. Both the threat area and the particular group causing the variance could be distinguished.

A second method of analysis was the correlation matrix. The measure of correlation used in this study was the Pearson product-moment correlation coefficient. Correlation is defined as a measure of the degree to which a relation between two variable exists, whether it be a negative or a positive relationship. The correlation data calculated in this study showed the relationship between the areas of threat measured by several different instruments.

The third method of analysis used was factor analysis. This is a "statistical method of extracting a number of common factors from a large number of measures. The purpose is to simplify a set of explanatory variables which are generated from complex and unexplored areas of scientific research into a relatively small number of independent factors with which the whole set of complex variables can be understood" (Hughes, 1972). Several factors were found and analyzed in this study and will be presented in Chapter III.

Hypotheses

The Hypotheses to be tested by this study were:

Hypothesis 1. Job stress rated by military commanders is positively correlated with job stress rated by their subordinates.

Hypothesis 2. Overt fear and anxiety measures will be positively correlated with covert measures of fear and anxiety.

CHAPTER III

RESULTS

Frequency Count and Means of Responses

The first part of this chapter pertains to the results of the Job Stress Rating (JSR) instrument given to 13 commanders and 100 subordinates. The 13 commanders each rated groups identified as working in CBPO (personnel), Missile Operations, Missile Maintenance, Security Police, and Communications. Thus, there were 65 Job Stress Ratings given by the commanders. Next, the subordinates were separated into the five groups identified above for testing. All individuals tested were given the following instruction. "It is assumed that various jobs in civilian life or in military organizations have differing kinds and amount of stress involved. The occupation listed below is to be rated on a 1 to 5 scale as the amount of each kind of stress which is associated with it." The scales were further explained to mean that a one indicated little stress and a five indicated much stress. The specific areas of stress to be rated were death, assault, emotional control, social rejection, impotence, marital rejection, parental rejection, jail, sin, hospital, financial, and war. The commanders were given an additional instruction in which they were told to rate the five groups according to how they judged the amount of job stress involved in each area.

The results of the JSR were first analyzed by calculating and comparing the means of each group of subordinates with the means calculated for the commanders. In Table 3-1, the means of the Commanders' responses for each job indicates their perception of the amount of stress involved with each.

TABLE 3-1
Means of Commanders' Responses
N=65, n=13 Per Job Area

STRESS AREA	Jobs Rated				
	CBPO	OPS	MAINT	SP	COMM
Death	1.54	2.77	2.46	3.77	2.15
Assault	1.54	1.85	1.23	4.08	1.69
Emotional	2.23	3.85	2.31	3.38	2.23
Social	2.08	2.85	1.85	3.69	2.15
Impotence	1.82	1.85	1.62	1.69	1.77
Marital	1.92	2.23	2.00	2.31	1.77
Parental	1.77	1.92	1.77	2.00	1.92
Jail	2.08	2.23	1.85	3.85	2.00
Sin	1.85	3.38	2.31	3.15	1.92
Hospital	1.77	2.77	3.08	3.46	2.46
Financial	2.85	2.31	2.54	2.46	2.54
War	1.77	3.92	1.92	3.46	2.15

It is significant to note that the commanders, as a group, perceived the greatest amount of stress for CBPO to be in the financial area; for OPS, it was the emotional, sin, and war areas; for maintenance, it was the hospital area; for security police, it was the death, assault, social, jail, hospital, and war areas; and for communications, it was the hospital area.

TABLE 3-2
Means of Subordinates' Responses
(By Group)

N=100, n=20 Per Job Area

STRESS AREA	Jobs Rated				
	CBPO	OPS	MAINT	SP	COMM
Death	2.15	1.95	2.15	3.95	1.40
Assault	2.40	1.80	1.70	2.70	1.15
Emotional	3.00	2.90	3.25	3.60	2.55
Social	2.90	2.45	2.55	2.70	1.70
Impotence	2.30	2.00	2.05	3.15	1.50
Marital	2.30	2.45	1.90	2.90	1.90
Parental	2.70	1.70	1.80	2.35	1.20
Jail	2.75	2.15	2.90	3.00	2.60
Sin	2.80	2.15	2.60	3.30	1.80
Hospital	2.75	2.40	2.90	2.90	2.00
Financial	3.60	2.00	3.15	2.60	2.75
War	3.00	2.80	3.05	3.30	1.80

Table 3-2 shows the means of the responses by the job categories as to the amount of job stress. The CBPO group believed that emotional, financial, and war provided the greatest stress; operations chose emotional and war as most significant; maintenance chose emotional, financial, and war; security police picked death, emotional, impotence, jail, sin, and war; and communications chose financial as most significant.

TABLE 3-3
Comparison of Means

STRESS AREA	COMMANDERS ¹	VS	SUBORDINATES ²
Death	2.54		2.32
Assault	2.08		1.95
Emotional	2.80		3.06
Social	2.52		2.46
Impotence	1.71		2.20
Marital	2.05		2.29
Parental	1.88		1.95
Jail	2.40		2.68
Sin	2.52		2.53
Hospital	2.71		2.59
Financial	2.54		2.82
War	2.65		2.79
	¹ N=65		² N=100

Table 3-3 reflects the means of the responses to the areas of stress. When the subordinates as a group are compared to the commanders as a group there is no significant difference in the perceptions of job stress. The previous tables (3-1 and 3-2) provide a better analysis of the differences in perception of job stress by occupation.

TABLE 3-4
Frequency Count of Responses
(Commanders)

N=65

STRESS AREA	LITTLE	1	2	3	4	5 MUCH
Death		21	9	22	5	8
Assault		31	12	13	4	5
Emotional		8	22	15	15	5
Social		19	16	11	15	4
Impotence		43	8	5	8	1
Marital		34	8	12	8	3
Parental		34	13	11	6	1
Jail		24	18	7	10	6
Sin		16	16	21	7	5
Hospital		11	19	19	10	6
Financial		20	9	24	5	7
War		18	16	14	5	12

Table 3-4 gives the frequency count for the ratings given by each commander. Generally, this group rated the areas of stress from 1-3 signifying low job stress.

TABLE 3-5
Frequency Count of Responses
(Subordinates)

N=100

STRESS AREA	LITTLE 1	2	3	4	5 MUCH
Death	46	15	14	11	14
Assault	52	19	17	5	7
Emotional	15	19	25	24	17
Social	36	15	22	21	6
Impotence	49	12	20	8	11
Marital	35	21	29	10	5
Parental	56	16	17	5	6
Jail	31	21	16	15	17
Sin	36	14	28	6	16
Hospital	31	23	15	18	13
Financial	27	8	23	19	23
War	28	16	21	19	16

Table 3-5 gives the frequency count of the responses by the subordinates. These groups responded somewhat differently than the commanders. The subordinates perceived that there was more stress in their jobs. Overall, the responses are more evenly distributed than were the commanders' responses.

TABLE 3-6
Means of Subordinates Responses
(by Instrument)
N=100

STRESS AREA	JSA	JSR	FAP			
			REPR	PW	DRD	KW
Death	5.73	2.32	2.57	6.42	10.16	2.74
Assault	5.98	1.95	2.98	6.49	8.19	3.19
Emotional	6.67	3.06	2.58	8.88	8.66	1.86
Social	5.79	2.46	4.98	5.35	7.83	2.99
Impotence	5.57	2.20	2.84	4.23	7.71	2.57
Marital	5.31	2.29	3.82	5.63	5.31	2.81
Parental	3.12	1.95	4.74	5.45	7.09	1.76
Jail	6.84	2.68	4.42	9.04	7.07	3.17
Sin	4.14	2.53	3.80	4.24	9.74	2.30
Hospital	4.54	2.59	3.50	9.43	8.41	2.67
Financial	5.68	2.82	4.18	7.01	7.95	1.69
War	3.74	2.79	3.41	5.04	9.81	3.41

Table 3-6 gives the means of the subordinates responses as measured by each instrument. The relative magnitude of the numbers in each column is significant only in that column. A number in the first column is not, necessarily, more significant than a number in the second because it is a larger number.

Correlated Data

A correlation matrix was made of the variables representing the areas of stress or threat measured by the six instruments used in this study. Each instrument measured the response of the subject to the same twelve areas of threat. Then all 72 variables were used to form a inter-correlation matrix from which highly correlated, variables could be identified.

The first part of the section will present the correlations coefficients of each of the twelve areas of threat as measured by the six instruments. For example, table 3-7 shows how death was correlated between the testing instruments.

TABLE 3-7
Correlation of Instruments With Respect to Death

INSTR	JSA	JSR	FAP			
			REPR	PW	DRD	KW(-)
ISA	--	.23*	.07	.14	.06	.39*
ISR	.23*	--	-.03	-.01	.05	.14
FAP-REPR	.07	-.03	--	.00	-.16	.14
FAP-PW	.14	-.01	.00	--	.11	.00
FAP-DRD	.06	.05	-.16	.11	--	-.08
(-)FAP-KW	.39*	.14	.14	.00	-.08	--
ISR(C)	-.07	.44*	.02	.00	-.12	-.05

*Significant at .05 Level

Table 3-7 shows that the highest positive correlation with respect to death was in the JSA, JSR, JSR by commanders, and FAP-knowledge instruments.

TABLE 3-8

Correlation of Instruments With Respect To Assault

INSTR	JSA	JSR	FAP			
			REPR(-)	PW	DRD	KW(-)
JSA	--	.11	.10	-.01	.12	.02
JSR	.11	--	.17*	.06	-.09	.18*
(-)FAP-REPR	.10	.17*	--	.07	-.12	-.12
FAP-PW	-.01	.06	.07	--	.15	.13
FAP-DRD	.12	-.09	-.12	.15	--	-.06
(-)FAP-KW	.02	.18*	-.12	.13	-.06	--
JSR(C)	.16	.28*	.16	-.13	.06	.07

*Significant at .05 Level

Table 3-8 shows that the highest correlation with respect to assault was in JSR, FAP-Knowledge, and the JSR(C) by commanders. Another positive correlation showed up between FAP-Repression and the JSR. In this last case the FAP-REPR measured memory instead of forgetting.

TABLE 3-9

Correlation of Instruments With Respect To Emotional

INSTR	JSA	JSR	FAP			
			REPR(-)	PW	DRD	KW(-)
JSA	--	.12	.04	-.02	.21*	.07
JSR	.12	--	.02	.07	.10	.08
(-)FAP-REPR	.04	.02	--	.03	.07	.08
FAP-PW	-.02	.07	.03	--	-.04	.04
FAP-DRD	.21*	.10	.04	-.04	--	.14
(-)FAP-KW	.07	.08	-.08	.04	.14	--
JSR(C)	.07	.05	-.08	.01	.02	-.28*

*Significant at .05 Level

In Table 3-9, the most significant positive correlation was between the JSA and the FAP-Dread. A negative correlation was observed between the JSR(C) by commanders and FAP-KW that was measuring lack of familiarity. Thus, the correlation was between Job Stress, as perceived by the commanders, and familiarity with the area of emotional stress.

TABLE 3-10

Correlation of Instruments With Respect to Social Rejection

INSTR	JSA	JSR	FAP			
			REPR(-)	PW(-)	DRD	KW
JSA	--	.13	.13	.11	.25*	.10
JSR	.13	--	-.09	.20*	.16	-.08
(-)FAP-REPR	.13	-.09	--	-.03	-.01	.16
(-)FAP-PW	.11	.20*	-.03	--	.19*	-.02
FAP-DRD	.25*	.16	-.01	.19*	--	-.08
FAP-KW	.10	-.08	.16	-.02	-.08	--
JSR(C)	-.06	.03	-.08	-.10	.01	.21*

*Significant at .05 Level

Table 3-10 shows that the highest correlation with respect to social rejection was in JSA, JSR, FAP-PW, and FAP-DRD. This correlation suggests that the subjects correlated job stress with a dread or preoccupation of social rejection.

TABLE 3-11

Correlation of Instruments with Respect to Impotence

INSTR	JSA	JSR	FAP			
			REPR(-)	PW	DRD	KW
JSA	--	.17*	.15	.00	.15	.16
JSR	.17*	--	.06	-.06	.17*	-.17*
(-)FAP-REPR	.15	.06	--	.09	.20*	.30*
FAP-PW	.00	-.06	.09	--	.14	.01
FAP-DRD	.15	.17*	.20*	.14	--	.11
FAP-KW	.16	-.17*	.30*	.01	.11	--
JSR(C)	.11	-.13	.18*	.11	.04	.30*

*Significant at .05 Level

Table 3-11 shows that the highest correlation with respect to impotence was in FAP-REPR, FAP-DRD, FAP-KW, and JSR by commanders. This suggests an awareness by the subjects for the area of stress called impotence. The positive correlation the commanders showed with FAP-KW suggests the same awareness for impotence as an area of stress.

Table 3-12, below, shows that the highest correlation with respect to marital rejection was between FAP-REPR and FAP-KW. This suggests a relationship between lack of familiarity with marital rejection and a repression of the idea. Also, the commanders and the subordinates considered marital rejection a stress on their job.

TABLE 3-12

Correlation of Instruments with Respect to Marital Rejection

INSTR	JSA	JSR	FAP			
			REPR	PW	DRD	KW(-)
JSA	--	.06	.06	-.02	.17*	.05
JSR	.06	--	-.08	.23*	-.09	.19*
FAP-REPR	.06	-.08	--	-.02	.05	.31*
FAP-PW	-.02	.23*	.02	--	-.03	-.07
FAP-DRD	.17*	-.09	.05	-.03	--	.11
(-)FAP-KW	.05	.17	.31*	-.07	.11	--
JSR(C)	.06	.26*	-.13	.11	.03	-.09

*Significant at .05 Level

Table 3-13, below, shows the correlations between the measuring instruments for the area of stress called parental rejection. Highest correlation was for FAP-PW and FAP-REPR.

TABLE 3-13

Correlation of Instruments with Respect to Parental Rejection

INSTR	JSA	JSR	FAP			
			REPR(-)	PW(-)	DRD	KW
JSA	--	.11	-.09	-.02	.03	.05
JSR	.11	--	.12	.11	.02	.12
(-)FAP-REPR	-.09	.12	--	.16	.10	.03
(-)FAP-PW	-.02	.11	.16	--	.02	-.06
FAP-DRD	.03	.02	.10	.02	--	.00
FAP-KW	-.05	.12	.03	-.06	.00	--
JSR(C)	.01	-.10	.16	.10	.06	.07

TABLE 3-14

Correlation of Instruments with Respect to Jail

INSTR	JSA	JSR	FAP			
			REPR	PW	DRD	KW(-)
JSA	--	.18*	-.04	.01	.13	.01
JSR	.18*	--	.06	-.04	.11	.24*
FAP-REPR	-.04	.06	--	.10	.11	-.09
FAP-PW	.01	-.04	.10	--	.04	.17*
FAP-DRD	.13	.11	.11	.04	--	-.06
(-)FAP-KW	-.01	.24*	-.09	.17*	-.06	--
JSR(C)	.03	.08	-.05	-.05	.06	.03

*Significant at .05 Level

In Table 3-14, the correlation between JSR and FAP-KW for Jail suggest that the subjects lacked familiarity with this threat area to consider it an area of job stress.

TABLE 3-15

Correlation of Instruments with Respect to Sin

INSTR	JSA	JSR	FAP			
			REPR	PW(-)	DRD(-)	KW
JSA	--	.13	.07	.13	.00	-.12
JSR	.13	--	.09	.03	.01	-.15
FAP-REPR	.07	-.09	--	-.15	.12	.19*
(-)FAP-PW	.13	.03	-.15	--	.04	-.05
(-)FAP-DRD	.00	.01	.12	.04	--	-.05
FAP-KW	-.12	-.15	.19*	.17	-.05	--
JSR(C)	-.08	-.03	.15	.11	-.06	.30*

*Significant at .05 Level

Table 3-15 shows the correlation of the instruments for the threat area of sin. The highest positive correlation is between the JSR by commanders and FAP-KW. This suggests the commanders were familiar with the problem of doing what is right or wrong as an area of stress for their subordinates.

TABLE 3-16

Correlation of Instruments with Respect to Hospital

INSTR	JSA	JSR	FAP			
			REPR	PW	DRD	KW
JSA	--	.36*	.09	.09	.28*	-.04
JSR	.36*	--	.03	-.03	.27*	.05
FAP-REPR	.09	.03	--	-.01	.05	.18*
FAP-PW	.09	-.03	-.01	--	.38*	.15
FAP-DRD	.28*	.27*	.05	.38*	--	.05
FAP-KW	-.04	.05	.18*	.15	.05	--
JSR(C)	.27*	.08	.15	.04	.14	.09

*Significant at .05 Level

Table 3-16 gives the correlations for hospital for the instruments of measurements. This threat area represents threat to death or injury. A highly positive correlation occurs between FAP-Dread and FAP-PW suggesting preoccupation and dread for injuries. Another positive correlation was between the JSR and JSA suggesting agreement on hospital as an area of job stress.

TABLE 3-17

Correlation of Instruments with Respect to Financial

INSTR	JSA	JSR	FAP			
			REPR(-)	PW	DRD	KW(-)
JSA	--	.44*	.13	.09	.03	.18*
JSR	.44*	--	.23*	.01	.04	.30*
(-)FAP-REPR	.13	.23*	--	.06	-.15	.11
FAP-PW	.09	.01	.06	--	-.05	-.01
FAP-DRD	.03	.04	-.15	-.05	--	.04
(-)FAP-KW	.18*	.30*	.11	-.01	.04	--
JSR(C)	.23*	.27*	.26*	.01	.11	.06

*Significant at .05 Level

Table 3-17 shows the correlation for the financial area of stress.

The JSR and the JSA show a high degree of agreement in this area. Other correlations, FAP-KW and JSR, suggest the lack of familiarity with the threat area as causing job stress.

TABLE 3-18

Correlation of Instruments with Respect to War

INSTR	JSA(-)	JSR(-)	FAP			
			REPR(-)	PW	DRD	KW
(-)JSA	--	.09	-.01	.06	.13	.07
(-)JSR	.09	--	.06	-.04	.05	.11
(-)FAP-REPR	-.01	.06	--	.05	-.08	.08
FAP-PW	.06	-.04	.05	--	.13	.10
FAP-DRD	.13	.05	-.08	.13	--	.12
FAP-KW	.07	.11	.08	.10	.12	--
JSR(C)	.05	.09	-.11	.10	.23*	.35*

Significant at .05 Level

Table 3-18 presents the correlations for war between the several instruments. Interestingly, the JSR by the commanders and FAP-KW is the only significant correlation. This suggests that the subordinates are familiar with the threat of war but do not consider it as significantly increasing stress in their jobs. On the other hand, the commanders do view it as increasing the job stress on their subordinates.

TABLE 3-19
Correlation Between JSA and other Measures of Concern

STRESS AREA	JSR	FAP			
		REPR	PW	DRD	KW
Death	.23*	.07	.14	.06	-.39*
Assault	.11	-.10	-.01	.12	-.02
Emotional	.12	-.04	-.02	.21*	-.07
Social	.13	-.13	-.11	.25*	.10
Impotence	.17*	-.15	.00	.15	.16
Marital	.06	.06	-.02	.17*	-.05
Parental	.11	.09	.02	.03	-.05
Jail	.18*	-.04	.01	.13	-.01
Sin	.13	.07	-.13	.00	-.12
Hospital	.36*	.09	.09	.28*	-.04
Financial	.44*	-.13	.09	.03	-.18*
War	.09	-.01	-.06	-.13	-.07

*Significant at .05 Level

Table 3-19 shows the correlation of the Job Stress Analysis and the other measures of concern for the twelve areas of stress. Significant correlations were in the stress areas of Death, Hospital, Financial, Emotional, and Social Rejection.

TABLE 3-20

Correlation Between JSR by Subordinates and Other Measures of Concern

STRESS AREA	JSA	FAP			
		REPR	PW	DRD	KW
Death	.23*	-.03	-.01	.05	-.14
Assault	.11	-.17*	.06	-.09	-.18*
Emotional	.12	-.02	.07	.10	-.08
Social	.13	.09	-.20*	.16	-.08
Impotence	.17*	-.06	.06	.17*	-.17*
Marital	.06	-.08	.23*	-.09	-.17*
Parental	.11	-.12	-.11	.02	.12
Jail	.18*	.06	-.04	.11	-.24*
Sin	.13	-.09	-.03	-.01	-.15
Hospital	.36*	.03	-.03	.27*	.05
Financial	.44*	-.23*	.01	-.04	-.30*
War	.09	.06	.04	-.05	-.11

*Significant at .05 Level

Table 3-20 shows the correlation of the Job Stress Rating by the subordinates and other measures of concern for the twelve areas of stress. Significant correlations were in the stress areas of Death, Marital Rejection, Jail, Hospital, and Financial.

TABLE 3-21

Correlation Between JSR(C) by Commanders and Other Measures of Concern

STRESS AREA	JSA	JSR	FAP			
			REPR	PW	DRD	KW
Death	-.07	.44*	.02	.00	-.12	.05
Assault	.16	.28*	-.16	-.13	.06	-.07
Emotional	.07	.05	.08	.01	.02	.28*
Social	-.06	.03	.08	.00	.01	.21*
Impotence	.11	-.13	-.18*	.11	.04	.30*
Marital	.06	.26*	-.13	.11	.03	.09
Parental	.01	-.10	-.16	-.10	.06	.07
Jail	.03	.08	-.05	-.05	.06	.03
Sin	-.08	-.03	.15	-.11	.06	.30*
Hospital	.27*	.08	.15	.04	.14	.09
Financial	.23*	.27*	-.26*	.01	.11	-.06
War	-.05	.09	.11	.10	.23	.35*

*Significant at .05 Level

Table 3-21 shows the correlation of the Job Stress Rating by commanders and the other measures of concern for the twelve areas of stress. Significant correlations were found in the stress areas of Death, Assault, Emotional, Impotence, Marital Rejection, Sin, Hospital, Financial, and War.

Factor Analysis

A factor analysis was used to generate constructs in which to analyze the attitudes of the subjects of this study. Several factors were identified that suggest areas of job stress as measured by a particular instrument. Table 3-22 shows the first factor obtained from the factor analysis. It was labeled "Job Stress" because it identified the twelve areas of stress measured by the Job Stress Rating instrument. The implication of the high positive loadings, on the stress areas, suggests that the subjects of this study believed that the twelve areas did create stress in their jobs.

TABLE 3-22

Factor I. Job Stress

STRESS VARIABLE	LOADING
JSR: Impotence	.833
JSR: Marital	.770
JSR: Parental	.724
JSR: Assault	.666
JSR: Social	.654
JSR: Hospital	.598
JSR: Death	.587
JSR: Sin	.579
JSR: Emotional	.548
JSR: Financial	.522
JSR: War	.510
JSR: Jail	.395

Table 3-23 shows the second factor and its loadings. It was labeled "Repression" because the variables were the twelve areas of threat measured by the FAP-Repression instrument. This factor suggests that the subjects of this study generally repressed thinking about the twelve threat areas relative to their jobs.

TABLE 3-23
Factor II. Repression

STRESS VARIABLE	LOADING
FAP-REPR: Hospital	.857
FAP-REPR: Impotence	.817
FAP-REPR: Assault	.814
FAP-REPR: Marital	.796
FAP-REPR: Emotional	.760
FAP-REPR: Death	.756
FAP-REPR: Financial	.734
FAP-REPR: Jail	.716
FAP-REPR: Parental	.713
FAP-REPR: War	.700
FAP-REPR: Sin	.687
FAP-REPR: Social	.515

Table 3-24 shows the third factor and its loadings. It was labeled "Recognition of Danger" because the high positive loadings demonstrated a familiarity with most of the twelve areas of threat to the subjects.

TABLE 3-24

Factor III. Recognition of Danger

STRESS VARIABLE	LOADING
FAP-KW: Assault	.802
FAP-KW: Impotence	.715
FAP-KW: Marital	.644
FAP-KW: Death	.538
FAP-KW: War	.436
FAP-KW: Social	.395
FAP-KW: Hospital	.337
FAP-KW: Financial	.275
FAP-KW: Jail	.271
FAP-KW: Sin	.228
FAP-KW: Emotional	(.141)
FAP-KW: Parental	(.061)

Table 3-25 shows the loadings for the fourth factor that was labeled "Emotional Distress". High positive loadings in emotional, sexual rejection, marital rejection, and parental rejection threat areas suggests that these threat areas are related in causing stress in a job. The recognition of stress from one of these threats may imply that stress also exists from the other threats.

TABLE 3-25

Factor IV. Emotional Distress

STRESS VARIABLE	LOADING
JSA: Emotional	.727
JSA: Impotence	.538
JSA: Marital	.462
JSA: Financial	.340
JSA: Parental	.284

Table 3-26 shows the fifth factor and its loadings. It was labeled "Dread Rejection" because it reflects the areas of threat that produce a significant amount of unintegrated dread in the subjects.

TABLE 3-26

Factor V. Dread Rejection

STRESS VARIABLE	LOADING
FAP-DRD: Marital	.791
FAP-DRD: Parental	.736
FAP-DRD: Impotence	.543
FAP-DRD: Social	.386
FAP-DRD: Death	.282

Table 3-27 gives the sixth factor and its loadings. It was labeled "Sin" because of the high negative loadings that occurred in several instruments. A rejection of sin as a threat is possible.

TABLE 3-27

Factor VI. Sin

STRESS VARIABLE	LOADING
FAP-PW: Censorship of Sin	-.741
FAP-DRD: Dread of Social Rejection	-.388
FAP-KW: Knowledge of Sin	-.342
FAP-REPR: Repression of Sin	(-.113)
FAP-DRD: Dread of Sin	(-.083)

Table 3-28 shows the seventh factor and its loadings. It was labeled "Finance" because of the significant number of loadings occurring in the instruments reflecting concern for financial stress. Familiarity with financial problems, sin, and social rejection were noted as possible contributors to increasing stress for this factor.

TABLE 3-28

Factor VII. Finance

STRESS VARIABLE	LOADING
JSA: Financial	-.612
FAP-KW: Social Rejection	.492
FAP-KW: Sin	.420
JSR: Financial	-.385
FAP-KW: Financial	.336
FAP-PW: Financial	(-.138)

CHAPTER IV

DISCUSSION

The purpose of this chapter is to discuss the significant results of this study. The chapter discusses three areas that this writer felt were important as a result of conducting this study. The three areas were 1) the differences in perception of job stress between commanders and subordinates; 2) the relationship of stress to other threat responses, such as fear and anxiety; and 3) the significance that the recognition of job stress by the Air Force can have on the operational unit.

Perceptions of Job Stress

A comparison of the means by commanders against the means by subordinates, given in Table 3-3, showed that there was negligible differences in the perceptions of job stress. This table compared the group of commanders as a whole against the subordinates as one group. Further analysis of the means of responses by job group, for both the commanders and subordinates, identified some significant differences in perception of job stress. This analysis of Table 3-1 and Table 3-2 showed that CBPO personnel considered themselves far more threatened in the stress areas than was perceived by the commanders. The opposite was true for the operations and maintenance personnel. The remaining group, security police and communications, were perceived at approximately the same level of job stress. Essentially, the operations and maintenance personnel balanced out the job stress difference noted for CBPO.

An analysis of Table 3-21, correlation between JSR(C) by commanders and other measures of concern, showed significant correlations for death, assault, marital rejection, and financial. These areas of stress were perceived by both commanders and subordinates as providing stress on the subordinates jobs.

Job Stress and Other Threat Responses

In Table 3-19, correlation between JSA and other measures of concern, significant correlations were found for the JSR in the stress areas of death, hospital, and financial. In the FAP-Dread measurement, there was significant correlation in the stress areas of emotional control, social rejection, and hospital. In the FAP-KW there was significant negative correlation in the stress area of death. This suggested that a lack of familiarity with death was exhibited by the subjects.

Table 3-20, correlation between JSR by subordinates and other measures of concern, showed significant correlations with the JSA for death, hospital, and financial. The FAP-PW showed a significant correlation for marital rejection, while the FAP-Dread correlated with the stress area of hospital. The significance of the last two are difficult to analyze. In the FAP-KW, there were significant negative correlations with jail and financial. Possibly a lack of familiarity on the part of the subordinates with financial matters caused them great concern to the extent that jail was a potent deterrence.

Table 3-21, correlation between JSR(C) by commanders and other measures of concern, showed significant correlations with JSA for stress

areas of hospital and financial; with JSR for death, assault, marital, and financial stress areas; with FAP-Dread for stress in the area of war; with FAP-KW for the areas of stress of emotional control, impotence, sin, and war. The implication in these correlations are difficult to understand. There is a similarity in the occurrence of death, injury, and war.

Recognition of Job Stress

The significance that a recognition of job stress by the Air Force on an operational unit could have far reaching implications. First, an understanding of what kind of stress is involved in a person's job can result in better performance by the individual and his unit. Second, the desirability of performing that job could increase the number of future prospects for future manning of jobs. Third, by understanding what stresses are involved in performing a job, measures can be taken to reduce the stress or at least increase the probability of satisfactory accomplishment, thus ensuring mission success.

Finally, more desirable jobs bring more applicants for these jobs and result in less turnover and a greater stability in manning levels. This decrease in turnover of personnel causes needed stability in critical jobs. It also results in decreased demand for new recruits which also decreases the need for training. All these results affect the amount of money needed by the Air Force to operate its units and to fulfill its mission.

CHAPTER V

SUMMARY

Summary

The purpose of this thesis was to measure the amount of job stress that was present in various jobs in an operational unit of the U. S. Air Force. The job areas that were measured were the Personnel field (CBPO), Missile Operations, Maintenance, Security Police, and members of the Communications function. It was assumed that these jobs were representative of the jobs needed to accomplish the mission of an operational unit.

Essential to this study was an analysis of the differences in job stress perceptions by commanders and their subordinates. An understanding of this difference can go far toward alleviating stress in jobs and increasing the performance of the individuals holding those jobs.

A further analysis was made into analyzing specific areas of stress and comparing them to areas of threat measured by other instruments. These other instruments were covert means of measuring stress in terms of fear and anxiety. It was believed that a correlation between areas of stress, measured by the JSA and JSR, and areas of threat, measured by the FAP, would exist.

Conclusions

It was hypothesized that job stress rated by military commanders is positively correlated with job stress rated by their subordinates. This study proves this to be partially true. When a group of commanders, from several job areas, rate the job stress in those several job areas the results will be similar to the rating given by the subordinates. If, however, the individual groups representing the job areas are compared with their superiors there will be a significant difference for some. Namely, the CBPO personnel perceived their jobs with high stress. On the other hand, operations and maintenance personnel perceived their jobs as having less stress than did their commanders. This result suggested that the subjects, both commanders and subordinates, were influenced by personal biases to a significant degree.

It was further hypothesized that overt fear and anxiety measures will be positively correlated with covert measures of fear and anxiety. This study proved this to be true, also, especially in the stress areas of death, assault, emotional control, marital rejection, hospital, financial, and war. This hypothesis further proved that stress is a response to a threat area as is fear and anxiety. It is significant that the areas of stress mentioned above describe the significant aspects of the environment in which young Air Force personnel must function.

A final conclusion arrived at by this writer is a serious concern that may impact the operational capability of U.S. Air Force units. This concern is directed at the job stress levels of individuals involved in critical operations, maintenance, or security police functions. When an

individual is first exposed to a high stress job or a high stress situation, in a low stress job, he will attempt to adapt by over-compensation in the performance of his job. If this stressful situation is short, the individual's performance will return to normal as control is gained. If, however, the stress is continuous, whether at an intense level or a moderate level, serious consequences may occur. First, if the continuous stress level is intense, fatigue will occur and performance will ultimately collapse. Secondly, if the continuous stress level is moderate, a similar collapse of performance will eventually result, but will come from a different cause.

The cause mentioned above is the basis for the serious concern expressed by this writer. It is that individuals involved in operations, maintenance, and security police function in a moderate job stress environment that is relatively continuous. What occurs is that these individuals become accustomed to their environments and gradually lose their capacity to react to moderate levels of job stress. This can result in injuries to personnel, damage to equipment, and ultimately loss of mission effectiveness. Only if a high stress situation or shock occurs will the individual return to some level of acceptable performance. Even this, over a long period, may not be sufficient to accomplish the units mission. The cause for this collapse in individual performance comes from the performance of repetitive and monotonous functions over an extended period of time. During this period the continued exposure of personnel to excessive evaluations by inspectors will contribute to the lower performance levels and ultimately degradation of mission accomplishment.

Recommendations

The following recommendations seem appropriate after conducting this study:

1. The Air Force should do more research and analysis of jobs and the stress encountered by personnel.
2. Commanders should carefully analyze the jobs of their subordinates to ascertain if performance is adversely affected by stress.
3. Significant savings in manpower and dollars can be made by reducing job stress.
4. Additional research should be made into the effects of job stress on mission accomplishments.
5. The effects of job stress should be analyzed with the purpose of reducing personnel turnover rates and PCS moves by Air Force personnel.

BIBLIOGRAPHY

- Benson, Herbert. The Relaxation Response. New York: William Morrow and Company, Inc., 1975.
- Bloom, Bernard L. Psychological Stress in the Campus Community. New York: Behavioral Publications, Inc., 1975.
- Bourne, Peter G. The Psychology and Physiology of Stress. New York: Academic Press, 1969.
- Broadbent, D. E. Decision and Stress. London: Academic Press, LTD, 1971.
- Cattell, Raymond B. Handbook of Multivariate Experimental Psychology. Chicago: Rand McNally & Company, 1966.
- Coker, Billye Levens. Behavioral Methods for Measuring Specific Dimensions of the Drive for Security. Master Thesis. Texas Technological College.
- Davis, Keith. Human Behavior at Work. McGraw-Hill, Inc., 1972.
- Doherty, Michael E., and Kenneth M. Shenberg. Asking Questions About Behavior. Illinois: Scott Foresman and Company, 1970.
- Eysenck, H. J. and S. Rachman. The Causes and Cures of Neurosis. San Diego: Robert R. Knapp, Publisher, 1965.
- Fine, Bernard J. "Intrinsic Motivation, Intelligence and Personality as Related to Cognitive and Motor Performance, Perceptual and Motor Skills, Vol. 34, (1972), pp. 319-329.
- Ford, Robert E., Michelle Alexander, and David Lester. "Fear of Death of Those in a High Stress Occupation," Psychological Reports, Vol. 29 (1971), p. 502.
- Garvie, Gordon T. "Stress and Motor Performance and Learning by Ss of Low and High Initial Ability," Perceptual and Motor Skills, Vol. 34, (1972) pp. 819-824.
- Hilgard, Ernest R. Introduction to Psychology. New York: Harcourt, Brace & World, Inc., 1962.
- Horney, Karen. The Neurotic Personality of Our Time. New York: W. W. Norton & Company, Inc., 1964.
- Horst, Paul. Factor Analysis of Data Matrices. Holt, Rinehart and Winston, Inc., 1965.
- Hughes, Gary and Arthur B. Sweeney. Relationships of Attitude Factors to the Career Decision of First Term Military Members. Center for Human Appraisal, Wichita State University.

- Huse, Edgar F. and James L. Bowditch. Behavior in Organizations: A System Approach to Managing. Massachusetts: Addison-Wesley Publishing Company, 1973.
- Janis, Irving L. Stress and Frustration. Harcourt Brace Jovanovich, Inc., 1971.
- Kolb, David A. Irwin M. Rubin, James M. McIntyre. Organizational Psychological. New Jersey: Prentice-Hall Inc., 1974.
- McQuade, Walter and Ann Aikman. Stress: What it is, What it can do to your health, How to fight back. New York: E. P. Dutton & Co. Inc., 1974.
- Poulton, E. C. Environment and Human Efficiency. Illinois: Charles C. Thomas, 1970.
- Runkel, Philip J. and Joseph E. McGrath. Research on Human Behavior. Holt, Rinehart and Winston, Inc., 1972.
- Schoeninger, Douglas W. and Chester A. Insko. Introductory Statistics for the Behavioral Sciences. Boston: Allyn and Bacon, Ind., 1971.
- Selye, Hans. The Stress of Life. New York: McGraw-Hill Book Company, Inc., 1956.
- Selye, Hans. Stress Without Distress. Philadelphia: J. B. Lippincott Company, 1974.
- Smith, Kerry. Stress and Campus Response. San Francisco: Jossey-Bass Inc., 1968.
- Sweney, Arthur B. FAP Manual. Wichita, Kansas: Test Systems, Inc., 1972.
- Taylor, Earl A. Meeting the Increasing Stresses of Life. Illinois: Charles E. Thomas, 1963.
- Torrance, E. Paul. Constructive Behavior: Stress, Personality, and Mental Health. California: Wadsworth Publishing Company, Inc., 1965.
- Webb, Eugene J., Donald T. Campbell, Richard D. Schwartz, Lee Sechrest. Unobtrusive Measures. Chicago: Rand McNally & Company, 1972.

Appendix A

J S A

An Attitude Survey

DIRECTIONS: On this questionnaire there are four choices of answers. Place a circle around the letter which stands for your answer. The meaning of the letters is as follows:

D = strongly disagree

d = moderately disagree

A = strongly agree

a = moderately agree

EXAMPLE: 1. War is bad D d a (A)

Name _____

J S A Test

Date _____ Age _____

1. Sometimes when I am at work, I think of dying D d a A
2. An important part of my job is guarding against sabotage D d a A
3. I have a hard time controlling my temper on the job D d a A
4. My friendships are limited D d a A
5. My job is detrimental to my sex life D d a A
6. My wife is happy with my job D d a A
7. Mom and Dad are proud that I am in the Air Force D d a A
8. Military regulations are necessary for law and order D d a A
9. The people I work with are out for themselves D d a A
10. I'm constantly exposed to injury on the job D d a A
11. My job pays well D d a A
12. I like my job because I want to go to war D d a A
13. I accept death as a part of my job D d a A
14. I have to be willing to fight because I'm in the military ... D d a A
15. Superiors dislike a lack of emotional control D d a A
16. People know I'm in the military when I go downtown D d a A
17. Women prefer the military man D d a A
18. My job will lead to divorce D d a A
19. My parents do not like the military D d a A
20. The Air Force is tolerant with its own offenders D d a A
21. There are low moral standards on my job D d a A
22. Military hospitals are inadequate D d a A
23. I have to hold down two jobs to make a living D d a A
24. I worry about war D d a A
25. Everyone fears death D d a A
26. The group in my unit are peaceful D d a A
27. Military people seldom show their true feelings D d a A
28. Most towns people don't understand the military D d a A
29. My job makes me feel like a man D d a A
30. My job limits my time with my wife/sweetheart D d a A
31. My folks won't let me wear the uniform while home D d a A
32. Police dislike the military D d a A
33. I have trouble doing the "right thing" on the job D d a A
34. There is too much illness on the job D d a A
35. To make ends meet, my wife has to work D d a A
36. My job helps prevent war D d a A
37. Missile men are not exposed to danger D d a A
38. There are less instances of military assault than civilian .. D d a A
39. I have to get away from the job during my off duty hours D d a A
40. I have many friends not in the military D d a A
41. While on the job, I'm preoccupied with thoughts of sex D d a A
42. My wife wished I would leave the Air Force D d a A
43. If I could change jobs, my parents would be happy D d a A
44. Military people seldom come in contact with civil authorities D d a A
45. My job requires immoral acts D d a A
46. My family seems to be having too much illness D d a A
47. As long as I'm in the Air Force, I don't worry about the money D d a A
48. If it were not for the threat of war, I would not have a job D d a A

Appendix B

JOB STRESS RATING

DIRECTIONS: It is assumed that various jobs in civilian life or in military organizations have differing kinds and amounts of stress involved. The occupation listed below is to be rated on a 1 to 5 scale as the amount of each kind of stress which is associated with it.

AREAS OF STRESS	AMOUNT OF STRESS						
Death	little	1	2	3	4	5	much
Assault	little	1	2	3	4	5	much
Emotional	little	1	2	3	4	5	much
Social rejection	little	1	2	3	4	5	much
Parental rejection	little	1	2	3	4	5	much
Sexual inadequacy	little	1	2	3	4	5	much
Affectional restriction	little	1	2	3	4	5	much
Law and order	little	1	2	3	4	5	much
Illness and injury	little	1	2	3	4	5	much
Financial	little	1	2	3	4	5	much
War	little	1	2	3	4	5	much
Moral conflicts	little	1	2	3	4	5	much

Circle the rating which indicates the amount of stress
you think is generated in each area.

Job Rated _____ Rater _____